return to the firſt, and by conſequence there go out of the Glaſs to the Chart, and form upon it the white Spot of Light in the center of the Rings. For the reaſon holds good in all ſorts of rays, and therefore all ſorts muſt go out promiſcuouſly to that Spot, and by their mixture cauſe it to be white. But the intervals of the fits of thoſe rays which are reflected more obliquely than they enter, muſt be greater after reflexion than before by the 15th and 20th Prop. And thence it may happen that the rays at their return to the firſt ſurface, may in certain obliquities be in fits of eaſy reflexion, and return back to the Quick-ſilver, and in other intermediate obliquities be again in fits of eaſy tranſmiſſion, and ſo go out to the Chart, and paint on it the Rings of Colours about the white Spot. And becauſe the intervals of the fits at equal obliquities are greater and fewer in the leſs refrangible rays, and leſs and more numerous in the more refrangible, therefore the leſs refrangible at equal obliquities ſhall make fewer Rings than the more refrangible, and the Rings made by thoſe ſhall be larger than the like number of Rings made by theſe; that is, the red Rings ſhall be larger than the yellow, the yellow than the green, the green than the blue, and the blue than the violet, as they were really found to be in the 5th Obſervation. And therefore the firſt Ring of all Colours incompaſſing the white Spot of Light ſhall be red without and violet within, and yellow, and green, and blue in the middle, as it was found in the ſecond Obſervation; and theſe Colours in the ſecond Ring, and thoſe that follow ſhall be more expanded till they ſpread into one another, and blend one another by interfering.

Theſe

Theſe ſeem to be the reaſons of theſe Rings in general, and this put me upon obſerving the thickneſs of the Glaſs, and conſidering whether the dimenſions and proportions of the Rings may be truly derived from it by computation.

OBS. VIII.

I meaſured therefore the thickneſs of this concavo-convex plate of Glaſs, and found it every-where $\frac{1}{4}$ of an Inch preciſely. Now, by the 6th Obſervation of the firſt Part of this Book, a thin plate of Air tranſmits the brighteſt Light of the firſt Ring, that is the bright yellow, when its thickneſs is the $\frac{1}{89000}$th part of an Inch, and by the 10th Obſervation of the ſame part, a thin plate of Glaſs tranſmits the ſame Light of the ſame Ring when its thickneſs is leſs in proportion of the ſine of refraction to the ſine of incidence, that is, when its thickneſs is the $\frac{11}{1513000}$th or $\frac{1}{137545}$th part of an Inch, ſuppoſing the ſines are as 11 to 17. And if this thickneſs be doubled it tranſmits the ſame bright Light of the ſecond Ring, if tripled it tranſmits that of the third, and ſo on, the bright yellow Light in all theſe caſes being in its fits of tranſmiſſion. And therefore if its thickneſs be multiplied 34386 times ſo as to become $\frac{1}{4}$ of an Inch it tranſmits the ſame bright Light of the 34386th Ring. Suppoſe this be the bright yellow Light tranſmitted perpendicularly from the reflecting convex ſide of the Glaſs through the concave ſide to the white Spot in the center of the Rings of Colours on the Chart: And by a rule in the ſeventh Obſervation in the firſt Part of the firſt Book, and by the 15th and 20th Propoſitions